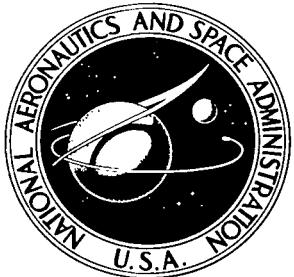


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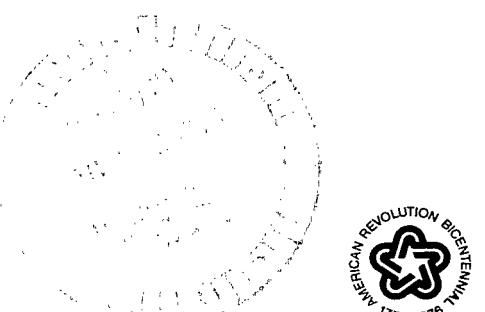


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DATA FOR NASA'S AVSSE I EXPERIMENT:
25 MB SOUNDING DATA AND SYNOPTIC CHARTS

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ABSTRACT This report describes the AVSSE I Experiment and presents tabulated rawinsonde data at 25 mb intervals from the surface to 25 mb for the 24 stations participating in the experiment. Soundings were taken between 1200 GMT, April 27, and 1200 GMT, April 28, 1975. The methods of data processing and accuracy are briefly discussed. Synoptic charts prepared from the data are presented, as well as an example of contact data.			
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The tasks of processing the AVSSE I data and preparing this report required the efforts of approximately 15 people. The work is often tedious and yet must be performed with great care and speed. The authors are grateful to every person who worked diligently behind the scenes to accomplish this important task.

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DATA FOR NASA'S AVSSE I EXPERIMENT: 25 MB SOUNDING DATA AND SYNOPTIC CHARTS

I. INTRODUCTION

To date NASA has conducted four Atmospheric Variability Experiments (AVE) and two Atmospheric Variability and Severe Storm Experiments (AVSSE). The dates of these experiments, observation times, and other information are summarized in Table 1.

The data reduction program and an error analysis have been presented by Fuelberg [1]. Some changes were made in Fuelberg's original program; these are discussed in Section III of this report. Also, error estimates taken from Fuelberg's report are presented in Section IV.

The AVE experiments were conducted for the primary purpose of studying atmospheric variability with emphasis on spatial and temporal changes in the structure of the atmosphere that could be determined from soundings taken at 3 h intervals, and which would not be reflected in soundings taken at 12 h intervals. Studies have shown (Scoggins et al. [2], Overall and Scoggins [3], and Wilson and Scoggins [4]) significant variability and changes in atmospheric structure from the 3 h data not present in the 12 h data.

The primary purpose of the AVSSE experiments is to provide a data base for studying atmospheric structure and variability associated with severe storms. These data will supplement measurements made by aircraft (a program conducted by the NASA Goddard Space Flight Center, Greenbelt, MD) in and near convective storms. The aircraft data will provide information on near-storm environments, while the AVSSE data will provide information on spatial and temporal scales between the aircraft data and normal 12 h rawinsonde sounding data.

II. THE AVSSE I EXPERIMENT

Twenty-four rawinsonde stations participated in the AVSSE I experiment. These stations are shown in Figure 1 and listed in Table 2. Soundings were taken at seven time periods -- April 27 at 1200, 1500, 1800, and 2100 GMT, and on April 28 at 0000, 0300, and 1200 GMT.

TABLE 1. SUMMARY OF AVE AND AVSSE EXPERIMENTS

Experiment	Dates	Observation Times (GMT)	Data Reports
AVE I	19-22 February 1964	2/19 – 00, 03, 06, 09, 12, 15, 18, 21 2/20 – 00, 03, 06, 09, 12, 15, 18, 21 2/21 – 00, 03, 06, 09, 12, 15, 18, 21 2/22 – 00, 03, 06, 09, 12, 15, 18, 21 2/23 – 00	Scoggins and Smith [5,6]
AVE II	11-12 May 1974	5/11 – 12, 15, 18, 21 5/12 – 00, 03, 06, 09, 12	Scoggins and Turner [7] Fuelberg and Turner [8]
AVE III	6-9 February 1975	2/6 – 00, 06, 12, 15, 18, 21 2/7 – 00, 06, 12	Fuelberg and Turner [9]
AVE IV	24-25 April 1975	4/24 – 00, 06, 12, 15, 18, 21 4/25 – 00, 06, 12	Fucik and Turner [10]
AVSSE I	27-28 April 1975	4/27 – 12, 15, 18, 21 4/28 – 00, 03, 12	This report
AVSSE II	6-7 May 1975	5/6 – 12, 15, 18, 21 5/7 – 00, 03, 12	Not yet published

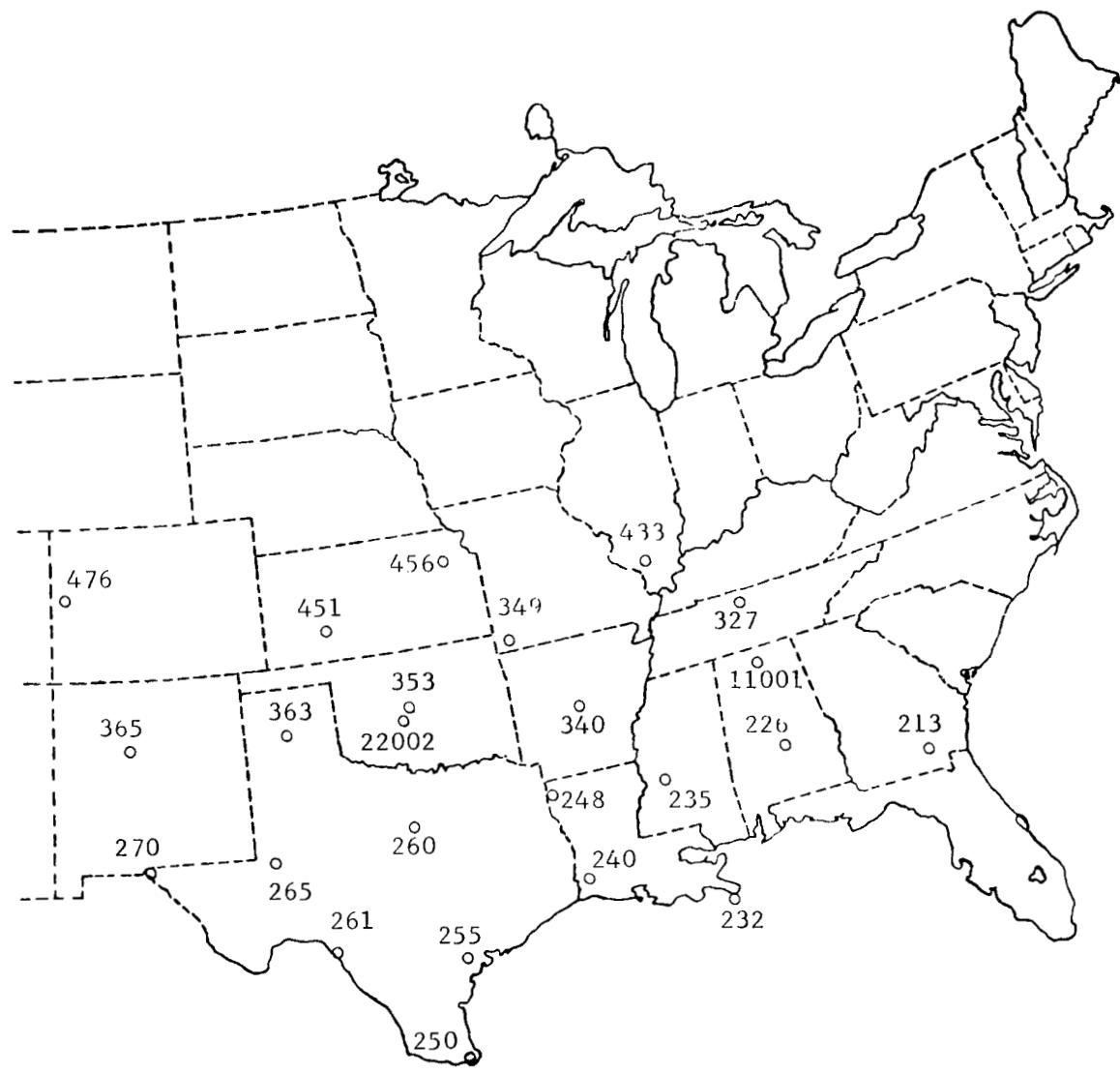


Figure 1. Rawinsonde stations participating in the AVSSE I experiment.

TABLE 2. RAWINSONDE STATIONS PARTICIPATING
IN AVSSE I EXPERIMENT

Station Number	Location
213 (AYS)	Waycross, Georgia
226 (CEN)	Centerville, Alabama
232 (BVE)	Boothville, Louisiana
235 (JAN)	Jackson, Mississippi
240 (LCH)	Lake Charles, Louisiana
248 (SHV)	Shreveport, Louisiana
250 (BRO)	Brownsville, Texas
255 (VCT)	Victoria, Texas
260 (SEP)	Stephenville, Texas
261 (DRT)	Del Rio, Texas
265 (MAF)	Midland, Texas
270 (ELP)	El Paso, Texas
327 (BNA)	Nashville, Tennessee
340 (LIT)	Little Rock, Arkansas
349 (UMN)	Monett, Missouri
353 (OKC)	Oklahoma City, Oklahoma
363 (AMA)	Amarillo, Texas
365 (ABQ)	Albuquerque, New Mexico
433 (SLO)	Salem, Illinois
451 (DDC)	Dodge City, Kansas
456 (TOP)	Topeka, Kansas
476 (GJT)	Grand Junction, Colorado
11001 (MFS)	Marshall Space Flight Center, Alabama
22002 (FSI)	Fort Sill, Oklahoma

III. DISCUSSION OF BASIC DATA

A. Collection

Original information from which sounding data were computed was sent to the Aerospace Environment Division, NASA Marshall Space Flight Center (MSFC), Alabama. Texas A&M University personnel extracted ordinate and angle data at each pressure contact and keypunched these and baseline data into cards. All sounding computations were made on an IBM 360/65 computer at Texas A&M University.

B. Methods of Processing

The procedure used to compute soundings is the same as that used on the AVE III and AVE IV data and is described by Fuelberg [1] and Fuelberg and Turner [9]. All keypunched data were checked for errors by calculating centered differences on the input data. Processed soundings were further checked by calculating centered differences of wind direction and speed and by calculating the lapse rates of temperature and dew point. All questionable data were checked with the original strip chart information and any data found to be erroneous were corrected. All known errors are listed in Table 3.

TABLE 3. KNOWN ERRORS REMAINING IN THE REDUCED DATA

Station	Date/GMT	Error
255 Victoria, Texas	27/2100	No data for first three minutes; recorder not turned on.

The final data sets of the AVSSE I experiment consist of data computed at each pressure contact and at 25 mb intervals. Thermodynamic quantities were computed at each pressure contact, while wind data were computed from 30 s intervals by means of centered finite differences and subsequently smoothed and interpolated to each pressure contact. These detailed profiles were then interpolated to give the 25 mb data presented in this report.

Three important changes were made in the original computer program [1]. These changes are reflected in all soundings beginning with AVE III and remain in the program for AVSSE I: (1) Humidity values, including dew point temperature, are computed only at temperatures above -40°C; at temperatures below -40°C, humidity values are indicated

by fields of nines as are missing values of humidity. The AVSSE I data contain computed moisture values down to a relative humidity of 1 percent; if the value of relative humidity is below 1 percent, it is set equal to 1 percent from which the other moisture variables are computed. (2) The second change involves the indication of winds which are based on low elevation angles. An asterisk following wind speed in the AVSSE I data means that the elevation angle was between 10° and 6° . A double asterisk indicates that the elevation angle was less than 6° . Since winds computed at low elevation angles have large rms errors, these data should be used with caution. (3) In the original computer program, 25 mb values of wind direction, scalar speed, and the u- and v-wind components were interpolated independently of each other. The program now interpolates the 25 mb values of u- and v-wind components and then determines wind direction and wind speed from the components. These changes appear in the contact and 25 mb data.

IV. DISCUSSION OF SOUNDING DATA

A. Accuracy Estimates

Estimates of the rms errors in the thermodynamic quantities of the AVSSE I data are the same as those for all AVE experiments and those given by Fuelberg [1]. These estimates are:

<u>Parameter</u>	<u>Approximate rms Error</u>
Temperature	1°C
Pressure	1.3 mb from surface to 400 mb; 1.1 mb between 400 and 100 mb; 0.7 mb between 100 and 10 mb.
Humidity	10 percent
Pressure Altitude	10 gpm at 500 mb; 20 gpm at 300 mb; 50 gpm at 50 mb.

The rms errors for wind speed and direction are difficult to describe since they are a function of tracking geometry and other factors. Maximum rms errors for winds computed at 30 s intervals (based on the worst geometric tracking configuration) are: at 700 mb approximately 2.5 mps at an elevation angle of 10° and approximately 0.5 mps at an elevation angle of 40° ; at 500 mb, 4.5 mps, and 0.8 mps for the same elevation

angles; and at 300 mb, 7.8 mps, and 1.0 mps, respectively. After assuming typical values of scalar wind speed at the various levels, maximum rms errors in wind direction were determined. The maximum rms errors at 700 mb range from approximately 9.5° at an elevation angle of 10° to approximately 1.3° at an elevation angle of 40°. At 500 mb the errors are 13.4° and 1.8° for the same elevation angles, while at 300 mb the maximum errors are 18.0° and 2.5°, respectively. The accuracy of the wind data at pressure contacts and at 25 mb intervals is greater than that stated for the 30 s winds because of the added smoothing and interpolation performed. In addition, errors cited for the 30 s winds were maxima for the stated conditions.

B. Tabulated Data

An example of AVSSE I contact data is given in Table 4. An explanation of the column headings is given in Table 5, and a list of missing soundings is given in Table 6. In Table 4, the first line of data for the time of 0.0 min is surface data. A series of nines is used to indicate missing data. The three numbers in the upper right-hand side of each page are the number of pressure contacts computed, the minimum pressure obtained (mb), and an angle identifier with the value 0 for 30 s angle input and 1 for 1 min angle input. The contact data are available in paper form or on magnetic tape from the George C. Marshall Space Flight Center, Aerospace Environment Division, Space Sciences Laboratory, Marshall Space Flight Center, Alabama 35812.

The contact data interpolated for 25 mb intervals are presented in the appendix. The column headings are identical to those used for the contact data and are described in Table 5. The soundings are arranged by time and appear in ascending order by station number for each time. The first line of data indicates the surface report which is followed by data from 1000 to 25 mb. In cases where the surface pressure is less than the given 25 mb pressure value, missing data (nines) are indicated for each quantity. This is also done when the sounding terminates before the 25 mb level is reached.

V. SYNOPTIC CHARTS

Synoptic charts for the beginning and ending of the observational period at the surface and 700 mb levels are presented in Figures 2 through 5. These maps are intended to depict the overall synoptic features during the observational period and should be reanalyzed when accuracy is a key factor.

TABLE 4. EXAMPLE OF CONTACT DATA

TABLE 4. EXAMPLE OF CONTACT DATA

STATION NO. 213 WAYCROSS, GA																
27 APRIL 1975 1115 GMT																
ANGLES ON THE HALF MINUTE HAVE BEEN LINEARLY INTERPOLATED FROM WHOLE MINUTE VALUES																
TIME	CNTCT	HEIGHT	PRES	TEMP	DEW PT	DIR	SPEED	U COMP	V COMP	POT T	E POT T	MX RTO	PH	RANGE	AZ	
MIN		GPM	MB	DG C	DG C	DG	M/SEC	M/SEC	M/SEC	DG K	DG K	GM/KG	PCT	KM	DG	
0.0	3.7	44.0	1013.6	17.6	210.0	1.5	0.7	1.3	291.2	322.3	12.1	96.0	0.0	0.0		
0.2	4.0	83.2	1009.0	19.6	18.9	24.4	4.3	-1.8	-3.9	293.8	329.3	13.6	96.0	0.2	3.	
0.5	5.0	187.2	997.0	22.6	20.0	24.4	4.3	-1.8	-3.9	298.0	337.2	15.0	85.5	0.2	3.	
1.0	6.0	301.9	984.0	23.0	17.8	69.9	1.2	-1.1	-0.4	299.3	334.3	13.2	72.7	0.1	335.	
1.3	7.0	409.1	972.0	22.4	17.1	162.6	1.9	-0.6	1.8	299.6	333.6	12.8	72.3	0.2	341.	
1.7	8.0	508.3	961.0	22.4	16.2	175.1	3.0	-0.3	3.0	300.5	332.9	12.1	68.0	0.2	346.	
2.0	9.0	608.6	950.0	22.1	16.2	171.6	2.4	-0.4	2.4	301.3	334.4	12.3	69.2	0.3	349.	
2.4	10.0	719.3	938.0	21.5	15.8	149.7	1.5	-0.8	1.3	301.7	334.2	12.1	69.9	0.3	347.	
2.8	11.0	840.4	925.0	20.8	14.8	139.1	1.7	-1.1	1.3	302.2	333.2	11.5	68.2	0.4	344.	
3.2	12.0	944.0	914.0	20.0	14.0	138.8	2.2	-1.5	1.7	302.3	332.2	11.1	68.4	0.4	342.	
3.6	13.0	1048.5	903.0	19.4	13.0	135.6	2.8	-1.9	2.0	302.6	331.1	10.5	66.7	0.5	339.	
3.9	14.0	1154.1	892.0	18.9	12.2	127.0	3.0	-2.4	1.8	303.2	330.7	10.1	65.1	0.5	337.	
4.3	15.0	1251.0	882.0	17.9	13.0	115.9	3.4	-3.0	1.5	303.1	332.3	10.7	72.8	0.6	332.	
4.8	16.0	1378.2	869.0	16.9	14.8	108.7	3.6	-3.4	1.1	303.6	336.9	12.3	87.7	0.7	326.	
5.1	17.0	1477.1	859.0	15.9	14.4	106.2	3.5	-3.3	1.0	303.5	336.4	12.2	91.1	0.7	322.	
5.5	18.0	1586.9	848.0	15.1	13.2	102.2	3.3	-3.2	0.7	303.7	334.6	11.4	88.6	0.8	319.	
5.9	19.0	1687.6	836.0	14.7	12.4	86.7	2.9	-2.9	-0.2	304.2	334.0	10.9	86.2	0.8	315.	
6.2	20.0	1789.3	828.0	13.9	11.4	72.2	2.6	-2.5	-0.8	304.4	332.5	10.3	84.4	0.9	313.	
6.7	21.0	1923.1	815.0	13.4	10.6	55.9	2.4	-2.0	-1.4	305.1	332.4	9.9	83.4	0.9	308.	
7.0	22.0	2027.1	805.0	12.4	9.8	56.3	2.3	-1.9	-1.3	305.1	331.4	9.5	84.1	0.9	305.	
7.4	23.0	2132.1	795.0	11.5	9.2	56.1	1.9	-1.6	-1.0	305.2	330.8	9.3	85.9	0.9	302.	
7.8	24.0	2227.4	786.0	10.7	8.6	52.8	1.4	-1.1	-0.8	305.3	330.1	9.0	86.3	0.9	299.	
8.1	25.0	2334.3	776.0	9.8	7.7	44.7	1.0	-0.7	-0.7	305.4	329.2	8.6	86.5	0.9	298.	
8.6	26.0	2464.0	764.0	9.5	7.2	358.8	0.7	0.0	-0.7	306.4	329.8	8.4	85.7	0.9	297.	
8.9	27.0	2573.5	754.0	8.9	5.7	333.5	1.0	0.4	-0.9	306.8	328.4	7.7	80.1	0.9	297.	
9.3	28.0	2673.1	745.0	8.2	6.0	326.7	1.5	0.8	-1.2	307.1	329.4	7.9	86.0	0.9	296.	
9.6	29.0	2773.6	736.0	7.2	5.2	328.3	1.8	0.9	-1.5	307.0	328.3	7.6	87.1	0.9	295.	
9.9	30.0	2886.2	726.0	6.3	4.5	333.8	2.0	0.9	-1.8	307.2	327.9	7.3	88.4	0.8	295.	
10.3	31.0	2988.7	717.0	5.6	4.1	341.0	2.2	0.7	-2.1	307.5	327.9	7.2	89.9	0.8	292.	
10.6	32.0	3092.1	708.0	4.8	2.9	345.4	2.2	0.6	-2.1	307.7	326.7	6.7	87.8	0.8	289.	
11.0	33.0	3196.5	699.0	3.9	2.4	349.4	2.1	0.4	-2.0	307.8	326.4	6.5	89.7	0.7	285.	
11.4	34.0	3301.9	690.0	3.1	2.4	347.7	1.9	0.4	-1.8	308.0	326.9	6.6	95.3	0.7	282.	
11.7	35.0	3408.4	681.0	2.3	1.2	342.5	1.8	0.6	-1.7	308.2	325.9	6.2	92.7	0.7	280.	
12.2	36.0	3540.2	670.0	2.0	0.2	331.6	2.1	1.0	-1.9	309.2	326.0	5.8	88.2	0.7	276.	
12.5	37.0	3649.5	661.0	1.6	-3.3	327.1	2.5	1.4	-2.1	309.9	323.2	4.6	69.7	0.7	274.	
12.9	38.0	3747.7	653.0	1.5	-5.4	325.8	3.2	1.8	-2.7	310.7	322.3	3.9	60.0	0.6	271.	
13.3	39.0	3847.0	645.0	1.3	-10.0	323.7	3.9	2.3	-3.1	311.5	319.9	2.8	42.5	0.6	262.	
13.6	40.0	3960.0	636.0	0.7	-12.2	320.9	4.2	2.7	-3.3	311.9	319.2	2.4	37.4	0.6	254.	
14.1	41.0	4087.1	626.0	-0.1	-13.5	312.2	4.5	3.3	-3.0	312.4	319.1	2.2	35.6	0.5	241.	
14.4	42.0	4190.1	618.0	-0.4	-14.1	305.2	4.6	3.7	-2.6	313.2	319.7	2.1	34.7	0.5	232.	
14.8	43.0	4307.2	609.0	-1.1	-14.9	296.2	4.6	4.1	-2.0	313.8	320.0	2.0	34.1	0.5	219.	
15.3	44.0	4412.6	601.0	-1.7	-19.5	288.3	4.5	4.3	-1.4	314.2	318.5	1.4	24.2	0.4	202.	
15.6	45.0	4519.2	593.0	-2.0	-22.6	286.3	4.4	4.3	-1.2	315.0	318.4	1.0	18.8	0.4	191.	
16.0	46.0	4627.0	585.0	-2.5	-26.7	288.2	4.3	4.1	-1.3	315.6	318.0	0.7	13.5	0.4	176.	
16.4	47.0	4722.4	578.0	-2.8	-51.7	294.6	4.3	3.9	-1.6	316.2	316.4	0.1	1.0	0.5	168.	

* BY SPEED MEANS ELEVATION ANGLE BETWEEN 6 AND 10 DEG

** BY TEMP MEANS TEMPERATURE OR TIME HAVE BEEN INTERPOLATED

*** BY SPEED MEANS ELEVATION ANGLE LESS THAN 6 DEG

TABLE 4. (Continued)

STATION NO. 213 WAYCROSS, GA															166	24	1
27 APRIL 1975 1115 GMT																	
ANGLES ON THE HALF MINUTE HAVE BEEN LINEARLY INTERPOLATED FROM WHOLE MINUTE VALUES																	
TIME	CNTCT	HEIGHT	PRES	TEMP	DEW PT	DIR	SPEED	U COMP	V COMP	POT T	E POT T	MX RTD	RH	RANGE	AZ		
MIN		GPM	MB	DG C	DG C	DG	M/SEC	M/SEC	M/SEC	DG K	DG K	GM/KG	PCT	KM	DG		
16.8	48.0	4832.7	570.0	-3.2	-52.0	301.5	4.3	3.7	-2.3	317.0	317.2	0.1	1.0	0.6	159.		
17.2	49.0	4944.3	562.0	-4.0	-48.7	309.1	4.5	3.5	-2.8	317.3	317.6	0.1	1.6	0.7	154.		
17.6	50.0	5042.9	555.0	-4.9	-53.0	317.7	4.8	3.2	-3.5	317.4	317.6	0.0	1.0	0.8	151.		
18.1	51.0	5185.6	545.0	-5.7	-53.5	329.6	5.2	2.6	-4.5	318.2	318.3	0.0	1.0	0.9	148.		
18.5	52.0	5301.2	537.0	-6.7	-54.2	337.4	5.5	2.1	-5.0	318.3	318.4	0.0	1.0	1.0	150.		
18.9	53.0	5403.5	530.0	-7.4	-54.6	340.9	5.3	1.7	-5.0	318.7	318.7	0.0	1.0	1.2	152.		
19.3	54.0	5506.8	523.0	-8.5	-55.3	341.4	5.0	1.6	-4.7	318.6	318.7	0.0	1.0	1.3	153.		
19.7	55.0	5626.2	515.0	-9.0	-55.6	339.6	4.6	1.6	-4.3	319.3	319.4	0.0	1.0	1.4	154.		
20.1	56.0	5762.3	506.0	-9.9	-56.2	335.8	4.4	1.8	-4.0	319.8	320.0	0.0	1.0	1.5	154.		
20.6	57.0	5854.2	500.0	-10.8	-56.7	330.2	4.5	2.2	-3.9	319.9	320.0	0.0	1.0	1.6	154.		
21.0	58.0	5977.9	492.0	-11.6	-57.3	326.8	4.9	2.7	-4.1	320.3	320.4	0.0	1.0	1.7	154.		
21.4	59.0	6071.8	486.0	-12.2	-57.6	324.8	5.6	3.2	-4.5	320.7	320.8	0.0	1.0	1.9	153.		
21.7	60.0	6182.5	479.0	-13.2	-54.3	323.8	6.0	3.6	-4.9	323.8	321.0	0.0	1.0	2.0	152.		
22.2	61.0	6294.4	472.0	-14.1	-54.9	322.8	6.6	4.0	-5.3	321.0	321.1	0.0	1.0	2.2	152.		
22.6	62.0	6407.6	465.0	-15.0	-57.4	322.1	6.7	4.1	-5.3	321.3	321.5	0.0	1.3	2.3	151.		
23.0	63.0	6505.6	459.0	-15.9	-42.3	321.4	6.5	4.0	-5.1	321.3	322.0	0.2	8.2	2.5	150.		
23.4	64.0	6621.2	452.0	-16.8	-48.4	321.4	6.1	3.8	-4.8	321.7	322.1	0.1	4.4	2.7	150.		
23.7	65.0	6738.2	445.0	-17.6	-50.0	322.0	6.0	3.7	-4.8	322.1	322.4	0.1	4.0	2.8	149.		
24.3	66.0	6873.7	437.0	-18.8	-50.5	324.4	6.2	3.6	-5.1	322.2	322.5	0.1	4.1	3.0	149.		
24.6	67.0	6976.5	431.0	-19.6	-48.9	326.0	6.4	3.6	-5.3	322.5	322.8	0.1	5.4	3.1	149.		
25.1	68.0	7080.4	425.0	-20.6	-44.7	328.4	6.9	3.6	-5.9	322.6	323.2	0.2	9.4	3.3	149.		
25.5	69.0	7203.1	418.0	-21.7	-42.1	329.1	7.3	3.8	-6.3	322.7	323.5	0.2	13.6	3.4	149.		
25.9	70.0	7309.4	412.0	-22.3	-42.0	328.1	8.1	4.3	-6.9	323.2	324.0	0.2	14.7	3.6	149.		
26.5	71.0	7435.1	405.0	-23.3	-43.0	327.1	9.6	5.2	-8.0	323.6	324.3	0.2	14.3	3.9	149.		
26.9	72.0	7544.2	399.0	-24.1	-43.9	328.3	10.7	5.6	-9.1	323.9	324.6	0.2	13.9	4.2	148.		
27.3	73.0	7654.6	393.0	-24.9	-44.5	330.5	11.5	5.6	-10.0	324.2	324.9	0.2	14.0	4.4	149.		
27.7	74.0	7766.3	387.0	-25.8	-45.2	333.1	11.9	5.4	-10.6	324.5	325.1	0.2	14.1	4.7	149.		
28.1	75.0	7879.4	381.0	-26.1	-49.4	336.0	12.0	4.9	-10.9	325.5	326.0	0.1	9.0	5.0	149.		
28.6	76.0	7994.2	375.0	-26.6	-57.7	339.1	11.8	4.2	-11.1	326.3	326.5	0.0	3.5	5.4	150.		
29.0	77.0	8090.9	370.0	-27.5	-59.5	340.6	11.8	3.9	-11.2	326.3	326.5	0.0	3.0	5.7	150.		
29.5	78.0	8208.3	364.0	-28.6	-57.4	340.8	11.8	3.9	-11.1	326.4	326.6	0.0	4.3	6.0	151.		
29.9	79.0	8327.1	358.0	-29.5	-55.3	340.1	11.6	3.9	-10.9	326.7	327.0	0.1	6.1	6.3	151.		
30.3	80.0	8427.3	353.0	-30.5	-54.5	339.1	11.4	4.1	-10.7	326.8	327.0	0.1	7.4	6.6	152.		
30.9	81.0	8569.3	346.0	-31.7	-53.2	337.7	11.8	4.5	-10.9	327.0	327.3	0.1	9.7	7.0	152.		
31.3	82.0	8692.8	340.0	-32.7	-53.1	336.8	12.4	4.9	-11.4	327.2	327.5	0.1	10.9	7.3	152.		
31.8	83.0	8797.0	335.0	-33.5	-53.7	335.4	13.3	5.5	-12.1	327.5	327.8	0.1	11.0	7.6	153.		
32.3	84.0	8902.4	330.0	-34.1	-55.8	333.9	14.2	6.2	-12.8	328.2	328.4	0.1	9.0	8.0	153.		
32.7	85.0	9030.7	324.0	-34.9	-56.8	333.1	14.9	6.8	-13.3	328.8	329.0	0.1	8.5	8.4	153.		
33.2	86.0	9160.8	318.0	-35.8	-58.0	332.4	15.8	7.3	-14.0	329.2	329.4	0.0	8.1	8.9	153.		
33.6	87.0	9270.8	313.0	-36.8	-58.1	331.8	16.6	7.8	-14.6	329.4	329.6	0.0	8.8	9.2	153.		
34.0	88.0	9382.0	308.0	-37.8	-59.3	330.9	17.4	8.4	-15.2	329.6	329.7	0.0	8.3	9.6	153.		
34.5	89.0	9494.6	303.0	-38.9	99.9	329.3	18.4	9.4	-15.8	329.7	999.9	999.9	999.9	10.2	152.		
34.9	90.0	9608.6	298.0	-39.7	99.9	328.1	19.0	10.0	-16.1	330.1	999.9	999.9	999.9	10.7	152.		
35.3	91.0	9724.1	293.0	-40.7	99.9	327.8	19.4	10.3	-16.4	330.3	999.9	999.9	999.9	11.1	152.		
35.8	92.0	9841.1	288.0	-41.5	99.9	329.5	19.9	10.1	-17.2	330.7	999.9	999.9	999.9	11.7	152.		

* BY SPEED MEANS ELEVATION ANGLE BETWEEN 6 AND 10 DEG

** BY TEMP MEANS TEMPERATURE OR TIME HAVE BEEN INTERPOLATED

*** BY SPEED MEANS ELEVATION ANGLE LESS THAN 6 DEG

TABLE 4. (Continued)

STATION NO. 213 WAYCROSS, GA																
27 APRIL 1975 1115 GMT																
ANGLES ON THE HALF MINUTE HAVE BEEN LINEARLY INTERPOLATED FROM WHOLE MINUTE VALUES																
TIME	CNTCT	HEIGHT	PRES	TEMP	DEW PT	DIR	SPEED	U COMP	V COMP	POT T	E POT T	MX RTO	RH	RANGE	AZ	
MIN		GPM	MB	DG C	DG C	DG	M/SEC	M/SEC	M/SEC	DG K	DG K	GM/KG	PCT	KM	DG	
36.2	93.0	9959.7	283.0	-42.2	99.9	332.6	20.6	9.5	-18.3	331.4	999.9	99.9	999.9	12.2	152.	
36.6	94.0	10055.8	279.0	-43.1	99.9	336.7	21.8	8.6	-20.0	331.5	999.9	99.9	999.9	12.7	152.	
37.1	95.0	10177.5	274.0	-43.9	99.9	342.0	23.7	7.3	-22.6	332.0	999.9	99.9	999.9	13.3	152.	
37.6	96.0	10325.9	268.0	-44.6	99.9	346.4	25.9	6.1	-25.2	333.0	999.9	99.9	999.9	14.1	153.	
38.0	97.0	10451.7	263.0	-45.5	99.9	349.1	27.5	5.2	-27.0	333.5	999.9	99.9	999.9	14.7	153.	
38.5	98.0	10553.6	259.0	-46.8	99.9	351.1	29.3	4.5	-28.9	333.0	999.9	99.9	999.9	15.5	154.	
38.9	99.0	10656.6	255.0	-47.7	99.9	351.6	30.5	4.4	-30.2	333.2	999.9	99.9	999.9	16.2	155.	
39.4	100.0	10787.1	250.0	-48.6	99.9	351.7	31.4	4.6	-31.1	333.8	999.9	99.9	999.9	17.1	156.	
40.0	101.0	10919.6	245.0	-49.7	99.9	351.3	31.5	4.8	-31.2	334.1	999.9	99.9	999.9	18.2	157.	
40.5	102.0	11054.3	240.0	-50.6	99.9	350.3	30.6	5.1	-30.2	334.7	999.9	99.9	999.9	19.1	158.	
41.0	103.0	11163.6	236.0	-51.4	99.9	348.4	29.3	5.9	-28.7	335.1	999.9	99.9	999.9	20.1	158.	
41.5	104.0	11274.3	232.0	-52.5	99.9	346.2	28.4	6.8	-27.6	335.0	999.9	99.9	999.9	20.8	159.	
41.9	105.0	11386.5	228.0	-53.5	99.9	345.1	28.2	7.2	-27.3	335.2	999.9	99.9	999.9	21.5	159.	
42.4	106.0	11500.2	224.0	-54.2	99.9	344.4	28.8	7.7	-27.7	335.9	999.9	99.9	999.9	22.4	159.	
42.9	107.0	11644.6	219.0	-55.3	99.9	343.8	30.1	8.4	-28.9	336.3	999.9	99.9	999.9	23.2	159.	
43.4	108.0	11762.0	215.0	-56.2	99.9	343.1	31.8	9.3	-30.5	336.8	999.9	99.9	999.9	24.2	159.	
43.9	109.0	11851.0	212.0	-57.2	99.9	342.3	34.0	10.4	-32.4	336.5	999.9	99.9	999.9	25.1	160.	
44.5	110.0	11971.2	208.0	-58.4	99.9	341.7	36.9	11.6	-35.1	336.4	999.9	99.9	999.9	26.4	160.	
45.0	111.0	12124.0	203.0	-59.2	99.9	342.3	38.5	11.7	-36.7	337.7	999.9	99.9	999.9	27.6	160.	
45.4	112.0	12248.4	199.0	-60.1	99.9	343.2	39.0	11.3	-37.3	338.2	999.9	99.9	999.9	28.5	160.	
45.9	113.0	12374.6	195.0	-61.2	99.9	344.1	39.5	10.8	-37.9	338.3	999.9	99.9	999.9	29.7	160.	
46.4	114.0	12503.2	191.0	-62.3	99.9	344.2	39.7	10.8	-38.2	338.5	999.9	99.9	999.9	30.9	160.	
46.9	115.0	12600.7	188.0	-63.3	99.9	343.1	39.2	11.4	-37.5	338.5	999.9	99.9	999.9	32.1	160.	
47.5	116.0	12766.1	183.0	-64.1	99.9	340.8	38.1	12.5	-36.0	339.8	999.9	99.9	999.9	33.4	160.	
47.9	117.0	12867.3	180.0	-64.5	99.9	339.2	37.9	13.5	-35.4	340.8	999.9	99.9	999.9	34.4	160.	
48.4	118.0	13004.5	176.0	-64.9	99.9	337.0	38.6	15.1	-35.5	342.3	999.9	99.9	999.9	35.5	160.	
48.9	119.0	13109.1	173.0	-66.1	99.9	334.7	40.6	17.3	-36.7	342.0	999.9	99.9	999.9	36.6	160.	
49.3	120.0	13250.6	169.0	-67.2	99.9	333.7	41.7	18.5	-37.4	342.5	999.9	99.9	999.9	37.6	160.	
49.8	121.0	13358.4	166.0	-68.0	99.9	333.9	41.3	18.1	-37.1	342.8	999.9	99.9	999.9	39.0	160.	
50.3	122.0	13504.6	162.0	-68.9	99.9	335.2	39.0	16.3	-35.4	343.7	999.9	99.9	999.9	40.2	160.	
50.7	123.0	13616.2	159.0	-69.6	99.9	336.0	37.2	15.1	-34.0	344.4	999.9	99.9	999.9	41.1	160.	
51.2	124.0	13729.7	156.0	-69.8	99.9	336.1	36.0	14.6	-32.9	345.9	999.9	99.9	999.9	42.1	159.	
51.7	125.0	13884.2	152.0	-70.5	99.9	335.6	35.7	14.8	-32.5	347.3	999.9	99.9	999.9	43.2	159.	
52.3	126.0	14042.1	148.0	-71.3	99.9	335.0	34.6	14.6	-31.3	348.7	999.9	99.9	999.9	44.5	159.	
52.7	127.0	14163.6	145.0	-70.1	99.9	334.4	32.9	14.2	-29.6	352.8	999.9	99.9	999.9	45.3	159.	
53.3	128.0	14246.7	143.0	-67.8	99.9	331.5	29.8	14.2	-26.2	358.1	999.9	99.9	999.9	46.4	159.	
53.8	129.0	14417.6	139.0	-67.2	99.9	325.8	28.4	16.0	-23.5	362.2	999.9	99.9	999.9	47.3	159.	
54.4	130.0	14549.7	136.0	-65.7	99.9	318.0	29.3	19.6	-21.8	367.1	999.9	99.9	999.9	48.2	159.	
55.0	131.0	14731.3	132.0	-65.3	99.9	315.2	32.3	22.8	-22.9	371.0	999.9	99.9	999.9	49.1	158.	
55.6	132.0	14871.5	129.0	-64.5	99.9	315.1	31.6	22.3	-22.4	374.9	999.9	99.9	999.9	50.4	157.	
56.1	133.0	15015.5	126.0	-64.1	99.9	313.4	26.8	19.5	-18.4	378.1	999.9	99.9	999.9	51.4	157.	
56.6	134.0	15162.8	123.0	-64.9	99.9	310.4	21.8	16.6	-14.1	379.3	999.9	99.9	999.9	51.8	157.	
57.2	135.0	15313.3	120.0	-65.3	99.9	310.1	20.5	15.7	-13.2	381.2	999.9	99.9	999.9	52.4	156.	
57.9	136.0	15467.3	117.0	-65.7	99.9	314.3	23.4	16.7	-16.3	383.2	999.9	99.9	999.9	53.2	156.	
58.5	137.0	15625.0	114.0	-65.9	99.9	317.5	26.3	17.7	-19.4	385.7	999.9	99.9	999.9	54.1	156.	

* BY SPEED MEANS ELEVATION ANGLE BETWEEN 6 AND 10 DEG

** BY TEMP MEANS TEMPERATURE OR TIME HAVE BEEN INTERPOLATED

*** BY SPEED MEANS ELEVATION ANGLE LESS THAN 6 DEG

TABLE 4. (Concluded)

STATION NO. 213 WAYCROSS, GA															166	24	1
27 APRIL 1975 1115 GMT																	
ANGLES ON THE HALF MINUTE HAVE BEEN LINEARLY INTERPOLATED FROM WHOLE MINUTE VALUES																	
TIME	CNTCT	HEIGHT	PRES	TEMP	DEW PT	DIR	SPEED	U COMP	V COMP	POT T	E POT T	MX RTO	RH	RANGE	AZ		
MIN		GPM	MB	DG C	DG C	DG	M/SEC	M/SEC	M/SEC	DG K	DG K	GM/KG	PCT	KM	DG		
59.2	138.0	15786.9	111.0	-65.9	99.9	319.4	28.3	18.4	-21.5	388.6	999.9	99.9	999.9	55.2	155.		
59.9	139.0	16009.4	107.0	-66.5	99.9	321.5	28.6	17.8	-22.4	391.5	999.9	99.9	999.9	56.4	155.		
60.6	140.0	16181.4	104.0	-66.7	99.9	324.6	26.6	15.4	-21.6	394.3	999.9	99.9	999.9	57.6	155.		
61.3	141.0	16358.1	101.0	-67.4	99.9	326.8	23.8	13.0	-19.9	396.4	999.9	99.9	999.9	58.6	155.		
62.0	142.0	16539.0	98.0	-69.2	99.9	325.9	23.0	13.1	-18.8	396.4	999.9	99.9	999.9	59.5	155.		
62.7	143.0	16725.5	95.0	-67.6	99.9	319.0	24.7	16.2	-18.7	403.0	999.9	99.9	999.9	60.5	154.		
63.5	144.0	16984.6	91.0	-67.4	99.9	313.1	25.7	18.7	-17.5	408.4	999.9	99.9	999.9	61.7	154.		
64.3	145.0	17186.6	88.0	-67.6	99.9	313.9	24.2	17.4	-16.8	411.9	999.9	99.9	999.9	62.8	153.		
65.0	146.0	17395.3	85.0	-67.8	99.9	315.2	21.5	15.1	-15.3	415.6	999.9	99.9	999.9	63.8	153.		
65.8	147.0	17611.8	82.0	-67.0	99.9	313.5	19.2	13.9	-13.2	421.6	999.9	99.9	999.9	64.6	153.		
66.5	148.0	17836.7	79.0	-67.4	99.9	312.9	18.3	13.4	-12.4	425.3	999.9	99.9	999.9	65.4	153.		
67.4	149.0	18071.7	76.0	-64.5	99.9	318.7	15.2	10.0	-11.4	436.1	999.9	99.9	999.9	66.3	152.		
68.3	150.0	18317.1	73.0	-65.7	99.9	313.3	10.3	7.5	-7.1	438.6	999.9	99.9	999.9	67.0	152.		
69.1	151.0	18485.5	71.0	-65.7	99.9	307.2	8.9	7.1	-5.4	442.1	999.9	99.9	999.9	67.3	152.		
70.0	152.0	18749.2	68.0	-64.3	99.9	314.8	10.2	7.2	-7.1	450.6	999.9	99.9	999.9	67.8	152.		
70.9	153.0	19024.3	65.0	-65.7	99.9	311.6	8.0	6.0	-5.3	453.4	999.9	99.9	999.9	68.4	152.		
71.8	154.0	19311.0	62.0	-66.3	99.9	324.3	6.5	3.8	-5.3	458.1	999.9	99.9	999.9	68.6	152.		
72.8	155.0	19614.9	59.0	-61.5	99.9	346.6	9.9	2.3	-9.7	475.4	999.9	99.9	999.9	69.1	152.		
73.8	156.0	19937.4	56.0	-62.9	99.9	347.3	8.5	1.9	-8.3	479.5	999.9	99.9	999.9	69.7	152.		
74.8	157.0	20162.0	54.0	-61.7	99.9	357.8	6.4	0.2	-6.4	487.2	999.9	99.9	999.9	70.1	152.		
75.9	158.0	20517.0	51.0	-60.4	99.9	356.5	7.5	0.5	-7.5	498.3	999.9	99.9	999.9	70.4	152.		
77.0	159.0	20895.8	48.0	-59.3	99.9	0.7	4.1	-0.1	-4.1	509.6	999.9	99.9	999.9	71.1	152.		
78.2	160.0	21300.2	45.0	-59.2	99.9	159.9	6.6	-2.3	6.2	519.5	999.9	99.9	999.9	70.8	152.		
79.4	161.0	21585.1	43.0	-59.2	99.9	135.7	9.3	-6.5	6.7	526.3	999.9	99.9	999.9	70.0	152.		
80.7	162.0	22041.4	40.0	-56.3	99.9	11.5	3.3	-0.7	-3.2	544.4	999.9	99.9	999.9	69.8	153.		
82.1	163.0	22539.6	37.0	-53.7	99.9	43.5	5.6	-3.8	-4.0	563.5	999.9	99.9	999.9	70.2	153.		
83.6	164.0	22897.0	35.0	-53.5	99.9	32.2	8.6	-4.6	-7.3	572.9	999.9	99.9	999.9	70.3	153.		
85.1	165.0	23476.6	32.0	-51.1	99.9	36.8	5.3	-3.1	-4.2	594.2	999.9	99.9	999.9	70.6	154.		
86.7	166.0	24119.3	29.0	-49.4	99.9	176.1	3.4	-0.2	3.4	615.9	999.9	99.9	999.9	70.6	154.		
88.4	167.0	24836.7	26.0	-48.3	99.9	156.8	3.9	-1.5	3.6	638.5	999.9	99.9	999.9	70.5	154.		
90.5	168.0	25362.5	24.0	-49.1	99.9	999.9	99.9	99.9	99.9	651.0	999.9	99.9	999.9	999.9	999.		

TABLE 4. (Concluded)

TABLE 5. EXPLANATION OF COLUMN HEADINGS OF TABULATED SOUNDING DATA FOR THE AVSSE I EXPERIMENT

TIME (MIN)	Time after balloon release.
CNTCT	Contact number.
HEIGHT (GPM)	Height of corresponding pressure surface in geopotential meters.
PRES (MB)	Pressure in millibars.
TEMP (DG C)	Ambient temperature in degrees Celsius. Note: An asterisk indicates that time from release and/or temperature were linearly interpolated.
DEW PT (DG C)	Dew point temperature in degrees Celsius.
DIR (DG)	Wind direction measured clockwise from true north and is the direction from which the wind is blowing.
SPEED (M/SEC)	Scalar wind speed in meters per second. Note: An asterisk indicates that wind quantities are based on an elevation angle that is between 10° and 6°. A double asterisk indicates that the elevation angle is less than 6°.
U COMP (M/SEC)	The E-W wind component, positive toward the east and negative toward the west.
V COMP (M/SEC)	The N-S wind component, positive toward the north and negative toward the south.
POT T (DG K)	Potential temperature in degrees Kelvin.
E POT T (DG K)	Equivalent potential temperature in degrees Kelvin.
MX RTO (GM/KG)	Mixing ratio in grams per kilogram.
RH (PCT)	Relative humidity in percent.
RANGE (KM)	Distance balloon is from release point along a radius vector.
AZ (DG)	Direction toward balloon measured clockwise from true north.

TABLE 6. LIST OF SOUNDINGS NOT TAKEN IN THE AVSSE I EXPERIMENT

Station	Date/Time
226 Centerville, Alabama	27/1500 27/1800 27/2100 28/0300
349 Monett, Missouri	27/1500 27/1800 27/2100 28/0300
433 Salem, Illinois	27/1500 27/1800 27/2100 28/0300
451 Dodge City, Kansas	27/1500 27/1800 27/2100 28/0300
476 Grand Junction, Colorado	27/1500 27/1800 27/2100 28/0300
232 Boothville, Louisiana	28/0300
248 Shreveport, Louisiana	28/0300
340 Little Rock, Arkansas	28/0300
353 Oklahoma City, Oklahoma	28/0300

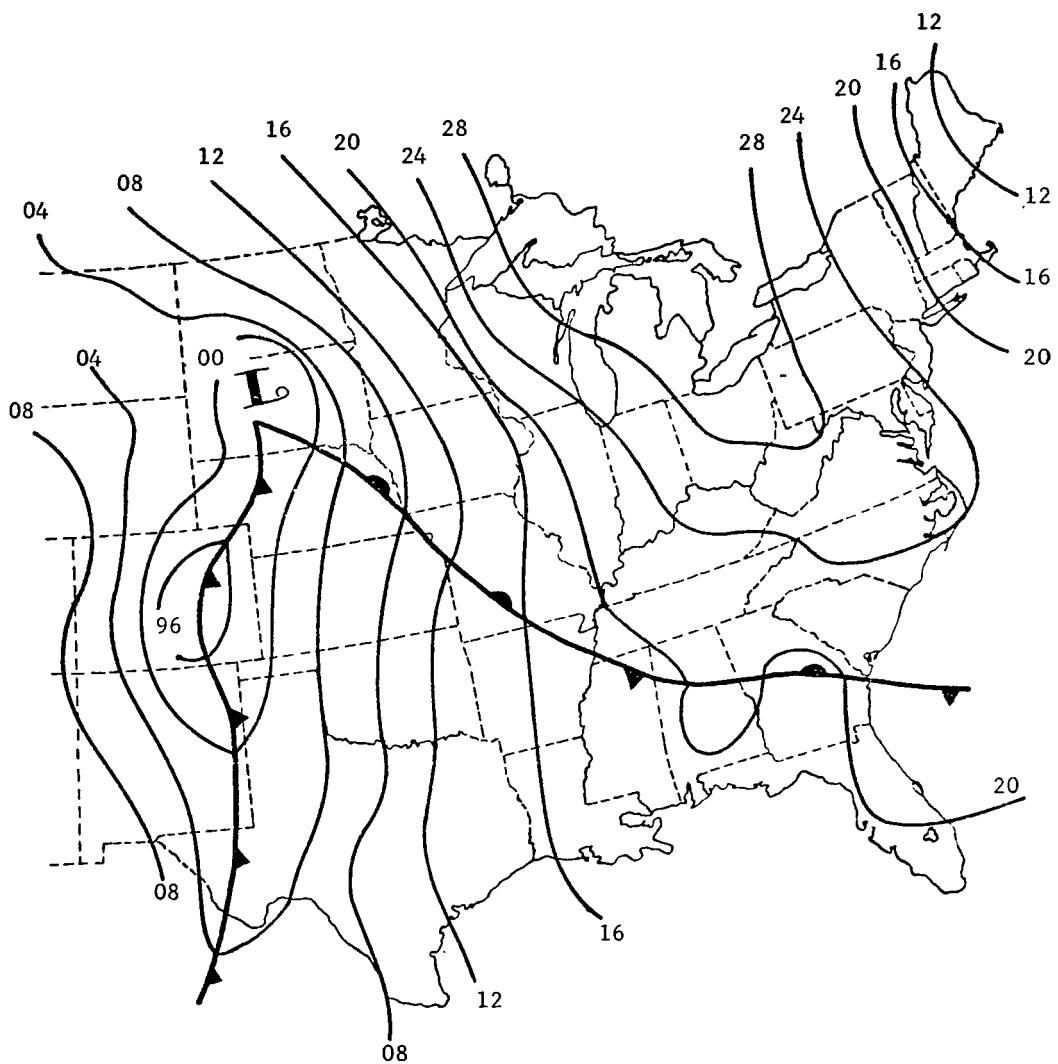


Figure 2. Synoptic chart for the surface at 1200 GMT, 27 April 1975.

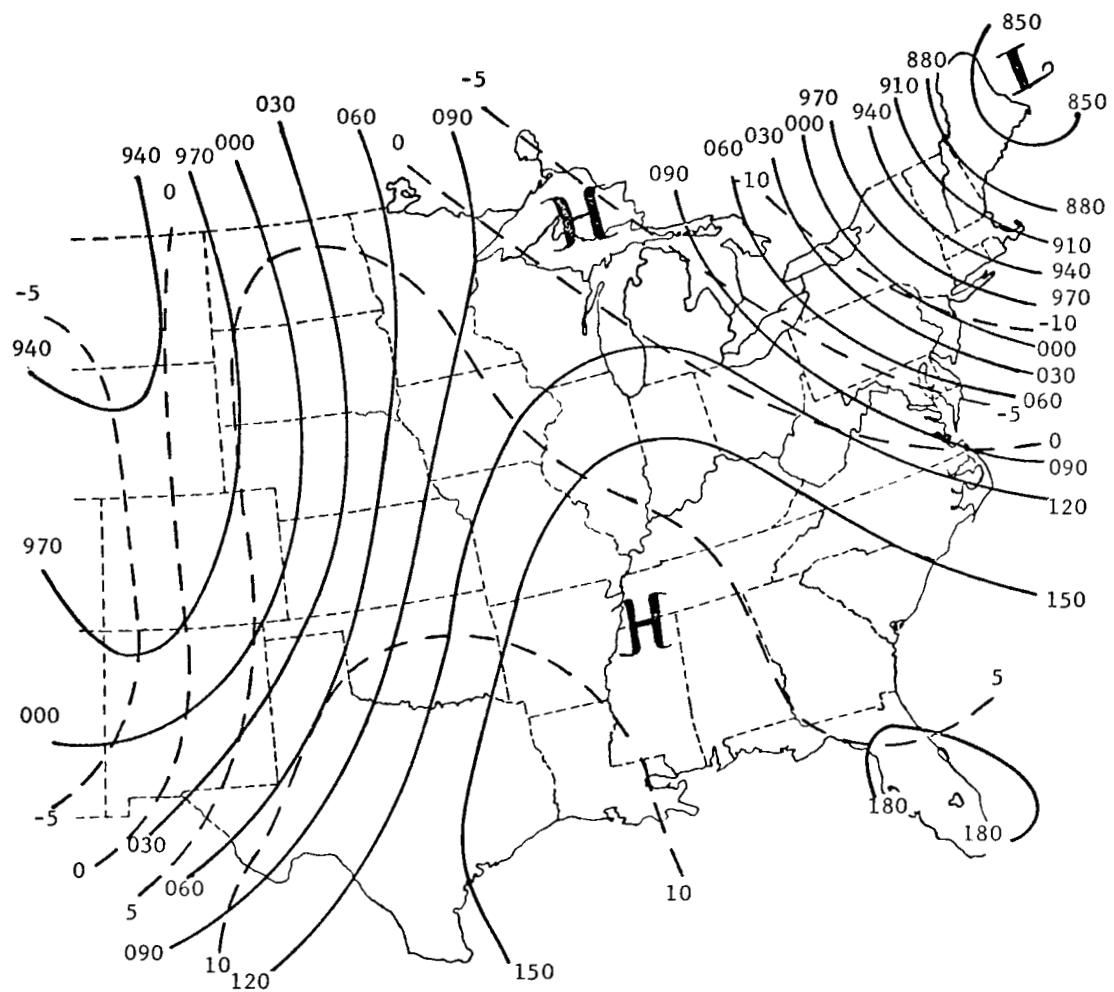


Figure 3. Synoptic chart for the 700 mb level at 1200 GMT, 27 April 1975.

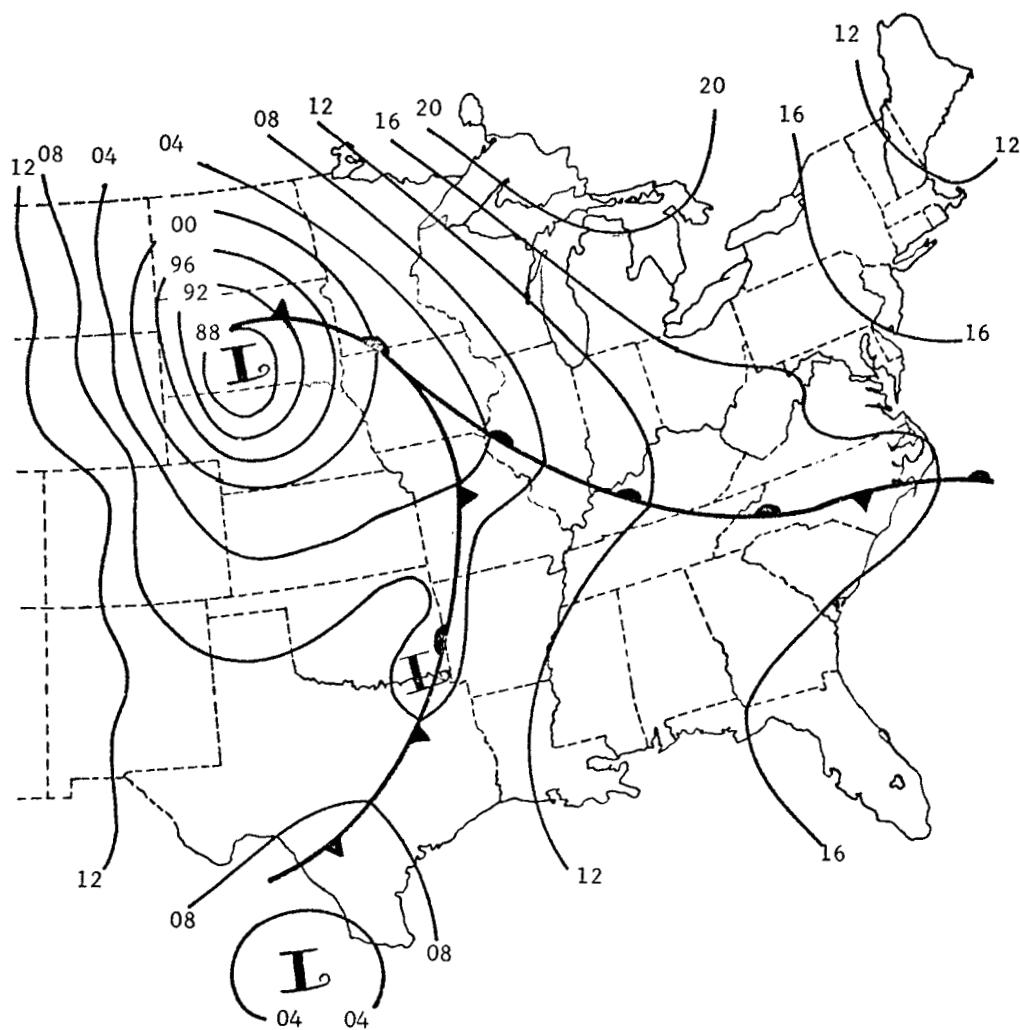


Figure 4. Synoptic chart for the surface at 1200 GMT, 28 April 1975.

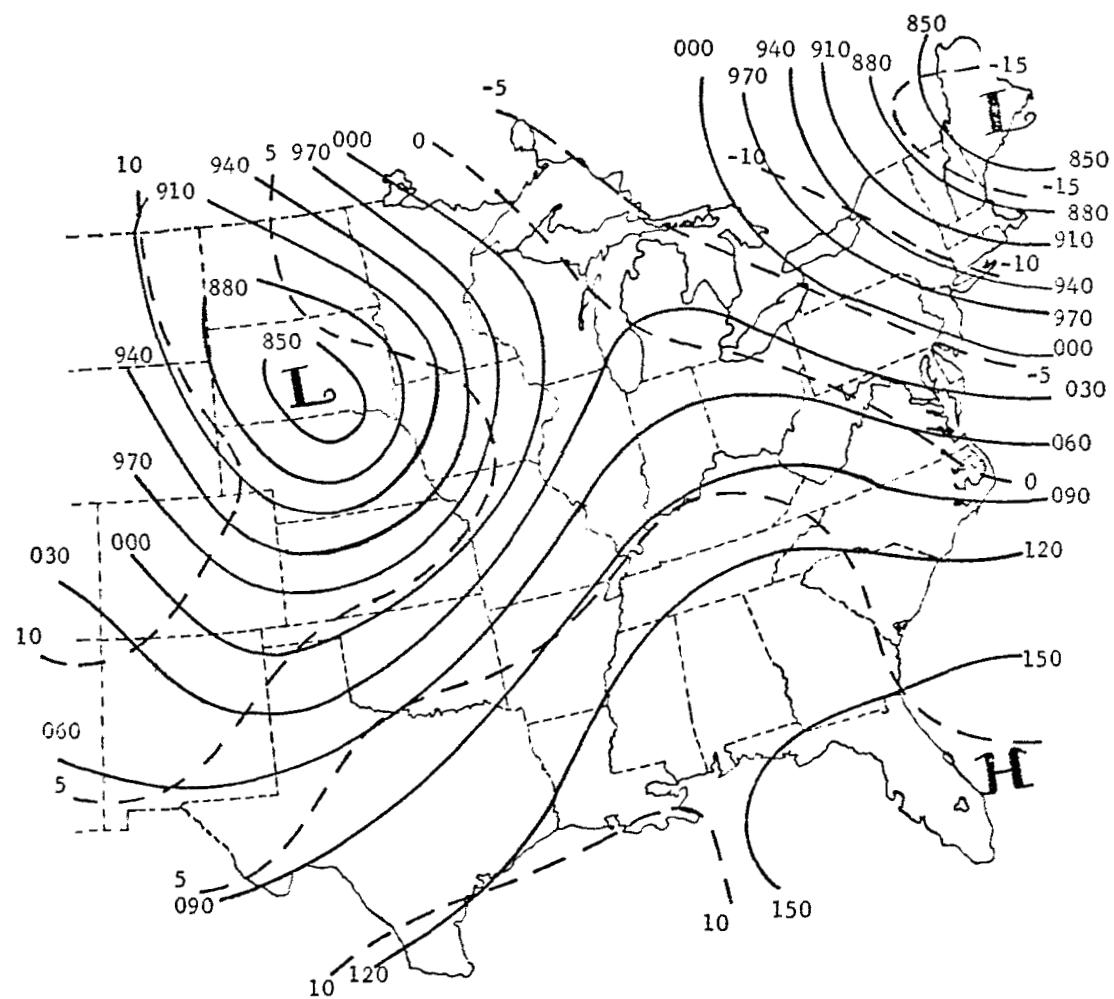


Figure 5. Synoptic chart for the 700 mb level at 1200 GMT, 28 April 1975.

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APPENDIX

SOUNDING DATA

These data are presented on microfiche as follows:

	Page
27 April 1975, 1200 GMT	20
27 April 1975, 1500 GMT	44
27 April 1975, 1800 GMT	63
27 April 1975, 2100 GMT	81
28 April 1975, 0000 GMT	100
28 April 1975, 0300 GMT	124
28 April 1975, 1200 GMT	139